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No News is Bad News: Political Corruption, News Deserts, and the Decline of the Fourth Estate

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Abstract

The newspaper industry is perhaps the most notable casualty of the rise of the digital age. In this work, we examine how the decline of local reporting capacity influences local levels of political corruption. As newspapers are an important investigative arm of local communities, it is possible that the decline of community media will embolden corrupt actors who believe they are less likely to be detected following the closure of a local newspaper. To examine these relationships, we leverage a novel dataset of federal charging documents of corruption and daily newspaper closures using a difference in difference approach. Results indicate a significant rise in federal corruption charges when major newspapers close in a federal district. Strikingly, we observe no evidence that the rise in online newsvendors is able to ameliorate this effect. This highlights the important role of the "fourth estate" in inhibiting corruption in governance.

Significance Statement

The increased connectivity afforded by the internet has led to a striking change in how people source their news. Whereas persons were once relegated to gathering information from their local paper and television outlets, they may now collect information from global content producers, hyper-partisan outlets, and unvetted online sources which are readily provided through social media platforms. In this work, we examine how the closure of local newspapers influences political corruption. Findings indicate that corruption significantly increases when major daily newspapers close, and that the recent rise of local online partisan news outlets does little to stymie this tide. This underscores the need for dramatic reinvestment in the generation of local news to hold political actors to account.

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"*The day I run into a Huffington Post reporter at a Baltimore zoning board hearing is the day that I will be confident that we have reached some sort of equilibrium. The next 10 or 15 years in this country are going to be a halcyon era for state and local political corruption. It is going to be one of the great times to be a corrupt politician. I really envy them.*"

David Simon, Creator of HBO's The Wire
Senate Hearing on the Future of Journalism
May 6, 2009

Introduction

The rise of the Internet and the digitization of the firm has indelibly changed the face of business. In-person rentals of film have given way to streaming (1), lower cost hotels are in a pitched fight with home rental platforms (2), record stores have been upended (first by piracy and then by legitimate digital vendors (3)), and the taxi industry has been devastated by the rise of transportation network firms (4). Yet, perhaps no industry has been gutted like newspapers and journalism. Weekly and Sunday circulation topped 62mm households as recently as 1990.[2] It now stands at less than half; obliterated by classified advertising competitors like Craigslist (5) and increased competition from remote providers and content aggregators (6). As of 2018, more than 1300 communities in the United States were without a primary newspaper, and half of US counties had only a single newspaper; frequently a weekly paper (7) without the resources required to conduct serious, time consuming, and expensive investigative journalism (8). In this work, we examine one worrying implication of the fall of the Fourth Estate: political corruption.

Corruption is particularly concerning in light of the sheer economic and social costs which accrue to citizens as a result of its insidious existence. Globally, corruption undermines the stability of prices, the ability to trade, and the ability to modernize economies (9) to the cost of $3.6 trillion per year in dead weight loss.[3] Economic costs are not the only prices paid. Researchers have documented links between political corruption, increased mortality, and decreased life expectancy globally (10). In the US, more than 1,700 officials were convicted of public corruption in the Northern District of Illinois alone, viz. Chicago, between 1976 and 2012, at a cost of $550mm dollars per year (11). In 2019, Transparency International reported that the United States was witnessing "an erosion of ethical norms at the highest levels of power" and a "loss of trust in foundational institutions."[4]

The press is often viewed as a watchdog against corrupt practices, shining a light on illegal behavior and ensuring legal remedy (12). Indeed, the idea that the free press can affect political systems is not new (13-15). Research suggests that the exit of newspapers can diminish electoral engagement (13), that media coverage of legal proceedings can significantly influence sentencing by judges (14), and that governments act aggressively towards media organizations which showcase ongoing scandals (15). This work further

[2] https://www.journalism.org/fact-sheet/newspapers/
[3] https://www.weforum.org/agenda/2018/12/the-global-economy-loses-3-6-trillion-to-corruption-each-year-says-u-n
[4] https://www.transparency.org/news/feature/cpi-2018-regional-analysis-americas

suggests two means by which the press might affect corruption: availability and auditing.

Regarding availability, canonical imagery of the fourth estate's investigative work ranges from the *Washington Post's* breaking of the Watergate scandal, to Ida Tarbell's groundbreaking work covering Standard Oil's anti-trust violations. And while the idea of the hard-nosed reporter connecting the dots of an elaborate scheme captures the imagination, this "probing" function is hardly representative. Instead, media coverage is often reactive (16), covering such scandals *ex post*, and plays a significantly larger role in agenda setting by making such stories salient (17, 18). Examples abound: ranging from Teapot Dome in the 1920s (19), to the accounting scandals of the 2000s (18), to the breaking of Iran-Contra in the 1980s (which originated from leaks from within the national security apparatus of the United States (20)). This indicates that a gap exists between the popular perception of journalism and the reality of its typical function. To the degree that this perception may be shared by would-be corrupt politicians, it suggests that politicians may misinterpret the signal sent by the closure of a major newspaper. Believing that an investigative arm is closing, they may incorrectly conclude that the risk of discovery has been lessened, and that the cost-benefit calculation has now shifted in favor of self-enriching actions.

With regard to auditing, numerous researchers have documented the importance of transparency in diminishing state and local corruption. Cordis and Warren (21) find that Freedom of Information laws stimulate arrests for public corruption. Further, when state capitals are less isolated, and information can be more easily gathered, corruption falls (22), a finding echoed when news media consumption rises (23). What does this mean in the context of newspaper closure? While the existence of auditing mechanisms is important, it still requires that someone dig into the documentation in order to uncover unscrupulous behavior. As the average member of the citizenry has neither the time, training, or incentive to do so, they are reliant on journalists to fill this role. If malicious political actors are aware that no or few journalists exist to take such investigative steps, they may be at least partially incentivized to proceed with acts they otherwise would not have taken part of.

Results indicate that the closure of newspapers significantly increases the number of corruption cases filed. Economically, findings indicate that the closure of a newspaper results in a 6.9% increase in the number of charges brought, a 6.8% increase in the number of defendants indicted, and a 7.4% increase in the number of cases filed.[5] Further, we observe no attenuating effect from the rise of online local content providers. This undermines hopes that the rise of citizen journalism will counteract the declining ranks of professional journalists by increasing the diversity of content and sources (24). This is unsurprising as

[5] It is worth considering whether Federal charges of corruption are an accurate proxy for actual levels of local corruption. If, for example, newspapers are bringing new information to light that enforcement officials act upon, and agents lose this detection capability, the proxy might not be accurate. However, since findings (discussed below) indicate that corruption is rising, any loss in the ability to detect corruption would only mean the measured increase in corruption is conservative.

little serious evidence exists to substantiate the quality, objectivity, or ethicality of citizen journalists as compared with professionals.

To empirically explore the impact of investigative journalism on corruption we examine the change in the number federal charges, defendants, and cases filed in U.S. District Court following closure of a newspaper serving that district. We focus on federal prosecutions as they represent the overwhelming majority of corruption prosecutions in the United States (25, 26). Moreover, this offers the empirical benefit of creating a uniform definition of corruption (federal law being uniform across all 50 states while state statute varies considerably). Data are collected from several sources. Data on charges of corruption are drawn from the Federal Judicial Center's (FJC) Integrated Database (IDB). These data are sourced from the Executive Office for United States Attorneys (EOUSA) Central Charge file and are organized at the defendant level. These records contain charges filed against a census of defendants in US District Court between 1996-2019.[6] Corruption-related charges are based on reviews of high-profile prior corruption cases and the FBI's Public Integrity Section. Focal charges include: 18 U.S.C. §201 (bribery of public officials and witnesses), §641 (embezzlement or theft of public money, property or records), §666 (theft or bribery concerning programs receiving Federal funds), §1341 (mail fraud), §1343 (fraud by wire, radio or television), §1346 (schemes to defraud), §1951 (Hobbs Act - interference with commerce by threats or violence), and §1952 (interstate and foreign travel or transportation in aid of racketeering enterprises) (Table S1). Together, these data include 183,309 charges brought under these sections against 128,151 defendants in 93,432 cases over the sample. Data are aggregated to the district-year. Data on newspaper closures are drawn from the UNC News Deserts database maintained by Abernathy (7). These data include information on closures and format changes for US newspapers. As our focus is on the effect of investigative journalism, and smaller weekly newspapers rarely have the resources for such work, we focus on the 69 major daily newspapers that closed during the sample. Summary statistics and a correlation matrix are in Table S2.

To estimate the effect, we exploit the dispersed geographic and temporal closure of newspapers using a difference in difference design. Formally, we estimate the following equation:

$$y_{jt} = \beta_1 Closure_{jt} + \theta_j + \lambda_t + \epsilon$$

As discussed, we use three dependent variables for the investigation. The first is the number of unique defendants, *Defendants*, charged in Federal District Court for the above violations of 18 U.S.C. This measure allows us to capture the number of people who have been indicted by a grand jury to a probable cause standard. The second measure is the number of unique cases brought, *Cases*. Finally, *Charges*,

[6] Appellate Courts are not included because they are not trial courts. All corruption cases heard in these venues would necessarily have been brought in District courts.

which are the total number of individual charges that have been levied against defendants in the district-year. The key independent variable of interest is *Closure*, a 0/1 indicator that a major newspaper was shut down in District *j* before time *t.* The value is 1 in the year after the district experiences a closure, and zero prior to that time. To complete the difference in difference estimation we also include district and year fixed effects. The unit of analysis is the district-year from 1996 - 2019. There are 94 districts in the US. We estimate our models using a Poisson Pseudo Maximum Likelihood (PPML) estimator. Standard errors are clustered on the district.

Results are in Table 1. Before discussing the results, we make note of one concern with the difference in difference approach. It is possible, for example, that the trends in the dependent variable across treated and untreated counties are different prior to the treatment (27). As such, if newspapers were closing rapidly in areas with increasing levels of corruption prior to closure, our estimates would be biased. To rule out this potential confound, we employ a popular variant on the Autor (28) model exemplified in Carnahan (29) and equivalent to the event study approach recommendation by Goodman-Bacon (30). In doing so, we interact an indicator for districts when a closure occurs with a series of dummies capturing the relative distance in years from the treatment to the current time *t.* Formally:

$$y_{jt} = \sum_k \tau_k PreClosure_{jt}(k) + \beta Closure_{jt} + \sum_m \omega_m PostClosure_{jt}(m) + \theta_j + \lambda_t + \epsilon$$

$PreClosure_{jt}(k)$ is an indicator equal to 1 if the chronological distance between newspaper closure in *jt* and the focal observation is *k* years. $PostClosure_{jt}(m)$ is the corresponding set of post treatment dummies. To be valid, there should be no heterogeneous pre-treatment trends. Indicators greater than ten years prior to treatment are collapsed into a single indicator for interpretability and to resolve the power issues commonly seen in the tails. Results are in Table 2.

Results

Results of the baseline analysis in Table 1 indicate a significant relationship between the closure of a major newspaper and political corruption. Three districts are dropped due to a lack of variation in the dependent variable (the Virgin Islands, Guam, and the Northern Mariana Islands). In Column 1, we see a significant and positive relationship between the *Closure* of a newspaper and the number of charges filed. Column 2 finds this same positive relationship between *Closure* and the number of defendants charged. Finally, Column 3 indicates a significant increase in the number of Cases brought after the *Closure* of a newspaper. Each of these suggest that when major investigative newspapers close there is a significant increase in the level of political corruption in the districts those newspapers served. Economically, the closure of a major newspaper yields a 6.9% increase in the number of charges brought, a 6.8% increase in the number of defendants indicted, and a 7.4% increase in the number of cases filed. Results including a suite of time varying controls are consistent (Table S3).

Results of the event study model in relative time (Table 2) indicate no systematic pre-treatment trends

across any of the dependent measures. This is indicated by the *t*-x dummies. Further, we note that the level of corruption following closure is initially insignificant and grows over time. This is intuitive, given that an emboldening of a criminal element will take time to be reflected in charges being filed against them. Results of Column 2 are graphed in Figures 1. These estimates corroborate the base difference in difference estimates and lend credibility to the suitability of the DID. This once again suggests that the closure of major investigative newspapers results in significantly more corrupt behavior. It is also worth noting that the temporally disbursed nature of the treatment raises the possibility of an inverse weighting problem (30). Results of a Goodman-Bacon (30) decomposition indicate this is not an issue (Table S7). Further robustness checks are discussed in the statistical appendix.

In light of the fact that political corruption increases when major newspapers close, it is worth considering two additional questions. First, is this changing the outcomes of actions brought against allegedly corrupt persons. Second, what role online newsvendors might play in attenuating corruption.

With regard to outcomes, one immediate concern is the fact that corruption often yields dead weight loss to society and prosecutions of corrupt political actors yield little in the way of asset forfeiture. This is different from, for example, drug related crimes, where a tremendous number of assets can be seized, e.g., cash and physical assets purchased by the criminal enterprise. Coupled with the fact that the actual process of trying cases is inherently expensive and time consuming, prosecutors aggressively seek plea deals to reduce the burden on the prosecuting office (31). Given the concern of dead weight loss, it is worth considering if there is any material change in the way indicted actors are reacting to being charged.

To assess this question, we update our dependent variable to reflect the number of defendants whose cases were concluded through *plea deals,* and the number closed through *guilty verdicts*. Verdicts can result from either jury or bench trials (i.e., trial by judge). Using these DVs, we then replicate our estimation of equation one. Results are in Table 3. As can be seen, there is a rise in both Plea Deals and Guilty Verdicts. This is unsurprising given that more cases and charges are being brought. However, what is striking is that the coefficient on pleas is roughly a third the size of the coefficient of verdicts. Economically, this translates to an 8% increase in plea deals, but a 25% increase in trials. And while the number of plea deals still dwarfs the number of trials (31),[7] this is nevertheless a troubling trend due to the added cost of trying the case, the loss of court time for other cases (and subsequent prosecutorial delay), and the increased cost of incarcerating convicted criminals for the longer durations trials result in.

With regard to local online news, one supposed panacea to the disappearance of the traditional news outlets has been the emergence of local non-print newsvendors, which could potentially fill the gap in coverage and provide some ability to investigate corruption. Such a possibility is intuitive given the

[7] This is also evident from the crosstabs in Table A2

importance thrust upon citizen journalists and the general intuition that they will be able to carry on the work of professional journalists. It should be noted, however, there is little evidence that this is true. Instead, evidence suggests that citizen journalism provides poor coverage of local government news relative to daily newspapers, chiefly because citizen journalists lack the training, standing, and time professional journalists have to devote to investigative journalism (32). Moreover, there is evidence that the "local" reporting which has emerged is hyper-partisan and only masquerades as meaningful news.

To determine the size of any effect we use data on the emergence of these sites provided by Bengani (33) and Mahone and Napoli (34). In most cases, the content on these websites is rewritten from other sources, such as the Mackinac Center or the Heritage Foundation, alongside trivial local reporting, repurposed local announcements, and press releases. These data include 352 such websites, their opening dates, and location. We then replicate the difference in difference estimation including an additional 0/1 indicator which captures whether one of these sites went online in district *j* as of time *t*. Results are in Table 4. As can be seen, there is no significant relationship between the launching of a news site in a district and charges, defendants, and cases (Columns 1-3). Replicating the estimations to include closure (Columns 4-6) indicates that these sites do not fill the void created by the closure of traditional news media outlets. Taken in sum, this corroborates evidence that supplementing professional journalism with these types of "local" online newsvendors is not a serious solution to the increasing corruption problem.

Discussion

This work makes two contributions. First, it adds to the broader set of empirical work on the societal implications of the digital age (35-38). While media has received some attention in this stream of research (5, 39), the predominant focus has been on the decline of the newspaper industry overall, rather than the societal implications of that decline. We are able to push this conversation forward by not only showing evidence that the decline of newspapers has incentivized illegal behavior, but that the hoped for rise in citizen journalism which the Internet Era was supposed to facilitate has done little to stem this tide. We are further able to highlight concerns with the national focus of reporting by online news outlets like *The Huffington Post* and *BuzzFeed.* Their national, rather than local, focus is problematic because institutional media like the *AP, New York Times, Reuters,* and *Washington Post* largely cover this material in addition to their local reporting. Thus, the larger online news vendors appear increase the competition for attention in an already saturated market, while doing little to supplement the lack of local reporting.

Second, this work underscores the importance of a functioning press in holding public officials to account and shows material concerns with the digital centralization of media. As James Madison described the free press in *The Virginia Resolutions*, it is "the only effectual guardian of every other right." To the extent that little attention is paid by content aggregators or digital media outlets to local issues, this changing focus alters the decision-making calculus for malicious local actors. And while one

might argue that this is of little concern because law enforcement is apprehending and charging these unlawful parties, there are at least three serious concerns with this argument. First, federal investigations are expensive and create dead weight loss because compensatory assets are rarely seized. For example, the trial of former Illinois governor Rod Blagojevich, who attempted to sell the vacated senate seat of former President Obama, cost tens of millions of dollars, a bill which was footed by taxpayers due to the limited seized assets to cover the cost of the investigation. Second, it means that the resources which are devoted to the investigation cannot be allocated elsewhere, i.e., into other investigatory behavior which does not create dead weight loss to society. Finally, our estimates may be conservative, meaning that while arrests are rising, we are not assured all bad actors are being apprehended. We hope this work serves as a call for researchers to continue investigating the pernicious effects of hollowing local media and what steps can be taken to incentivize online media outlets to begin covering local issues in the way that the *New York Times* and the *Washington Post* continue to cover issues in their respective regions.

Finally, we hope this work serves as a call for greater research into the implications of the fall of the Fourth Estate. With the demise of the newspaper industry, we are observing both: i) the implosion of access to high quality information and ii) the hollowing of an institution upon which democracy is dependent. Corruption is one implication of this, and it is a concern which has been central to the protection of the press since the birth of the United States. In *Federalist No 84*, Hamilton excoriated the idea of leveraging duties on the press to operate, calling the fourth estate the "the only solid basis of all our rights." The rise of disinformation on social media (which have partially acted to fill the void left by the closure of traditional news media and partially created that void) is another way in which the integrity of this protector is being undercut. It is our hope that scholars will dig into the implications of the void, how it is affecting decision making, and what the long-term implications are.

This work is not without limitations. First, we cannot observe the true rate of corruption. We can only proxy it using charges filed and indictments handed down. This would be more concerning if the number of charges being filed decreased after a newspaper closed because we would be unable to differentiate between a falling level of crime and a dependence upon reporters to uncover crime. However, given that the number of charges is increasing it suggests that our results are, if anything, conservative. Second, although we focus on newspapers as a proxy for coordinated investigatory human capital in this work, we are unable to observe the amount of human capital which persists after closure. While results are consistent when controlling for the number of journalists and journalist wages in the district-year, the question of how many of those journalists continue their work with local television news or some other information vender is outstanding. To the extent that newspapers have a reputation for more serious and impactful reporting than televised news (40), this should not be an issue, but it nevertheless bears note. Third, observing the true mechanism, i.e., salience or auditing, is difficult, as the motivation and decision-

making calculus of corrupt actors is difficult to observe in secondary data. To the extent that both salience and auditing are likely at play, further research is warranted.

Fourth, it is worth noting that we do not consider the effect of television news. Ultimately, this is a function of three truisms of journalism. The first is that local television news is largely stable (an affiliate for CBS, NBC, ABC, and Fox being consistently available in almost all media markets), meaning that markets experience little disruption even if there is evidence of consolidation by groups like Sinclair. Second, the amount of serious investigative journalism conducted is different across newspapers and television (as evidenced by the distribution of Pulitzer Prizes, Peabody Awards, and Edward R Murrow Awards). While hard hitting journalism does exist in shows like 20/20 and 60 Minutes, or by broader national syndicates more generally, the majority of local news coverage includes things like weather, sports, and local violent crime. Third, and importantly, much of television news is not, in-fact, news. Programming such as *Hannity*, *The Rachel Maddow Show*, and *Fox and Friends*, are opinion and political talk, not news. It would therefore be inappropriate to conflate this programming with serious journalism.

Finally, we cannot perfectly observe the reasons for each paper's failure, it likely being a mix of changing economic conditions, the rise of the internet, changing demographic issues, and so forth. Insofar as these changes may be correlated with both paper failure and the rise of corruption, we must be cautious in our interpretation of the results. However, to the extent that findings persist in the presence of socio-economic controls, we observe no pre-treatment trends, and there appears to be no significant relationship between charges and closure, the assumptions of the difference in difference estimation appear to hold.

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References

1. Sutter K (2014) *Distribution revolution: Conversations about the digital future of film and television* (Univ of California Press).
2. Zervas G, Proserpio D, & Byers JW (2017) The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry. *Journal of Marketing Research* Forthcoming.
3. Danaher B, Dhanasobhon S, Smith MD, & Telang R (2010) Converting pirates without cannibalizing purchasers: The impact of digital distribution on physical sales and internet piracy. *Marketing science* 29(6):1138-1151.
4. Cramer J & Krueger AB (2016) Disruptive Change in the Taxi Business: The Case of Uber. *American Economic Review* 106(5):177--182.
5. Seamans R & Zhu F (2013) Responses to entry in multi-sided markets: The impact of craigslist on local newspapers. *Management Science* 60(2):476-493.
6. Clemons EK, Gu B, & Lang KR (2002) Newly vulnerable markets in an age of pure information products: An analysis of online music and online news. *Journal of Management Information Systems* 19(3):17-41.
7. Abernathy PM (2018) *The expanding news desert* (Center for Innovation and Sustainability in Local Media, School of Media and Journalism, UNC Chapel Hill).
8. Hamilton JT (2009) Subsidizing the watchdog: what would it cost to support investigative journalism at a large metropolitan daily newspaper. *Duke Conference on Nonprofit Media*, pp 4-5.
9. Mauro P (1995) Corruption and growth. *The quarterly journal of economics* 110(3):681-712.
10. Li Q, An L, Xu J, & Baliamoune-Lutz M (2018) Corruption costs lives: evidence from a cross-country study. *The European Journal of Health Economics* 19(1):153-165.
11. Simpson D, *et al.* (2012) Chicago and Illinois, leading the pack in corruption.
12. Coronel S (2010) Corruption and the watchdog role of the news media. *Public sentinel: News media and governance reform*:111-136.
13. Gentzkow M, Shapiro JM, & Sinkinson M (2011) The effect of newspaper entry and exit on electoral politics. *American Economic Review* 101(7):2980-3018.
14. Lim CS, Snyder Jr JM, & Strömberg D (2015) The judge, the politician, and the press: newspaper coverage and criminal sentencing across electoral systems. *American Economic Journal: Applied Economics* 7(4):103-135.
15. Di Tella R & Franceschelli I (2011) Government advertising and media coverage of corruption scandals. *American Economic Journal: Applied Economics* 3(4):119-151.
16. Protess DL (1992) *The journalism of outrage: Investigative reporting and agenda building in America* (Guilford Press).
17. Dearing JW, Rogers EM, & Rogers E (1996) *Agenda-setting* (Sage).
18. Benediktsson MO (2010) The deviant organization and the bad apple CEO: Ideology and accountability in media coverage of corporate scandals. *Social Forces* 88(5):2189-2216.
19. Gentzkow M, Glaeser EL, & Goldin C (2006) The rise of the fourth estate. How newspapers became informative and why it mattered. *Corruption and reform: Lessons from America's economic history*, (University of Chicago Press), pp 187-230.
20. Hersh SM (2019) The Vice President's Men. *London Review of Books* 41 (2): 9–12.
21. Cordis AS & Warren PL (2014) Sunshine as disinfectant: The effect of state Freedom of Information Act laws on public corruption. *Journal of public economics* 115:18-36.
22. Campante FR & Do Q-A (2014) Isolated capital cities, accountability, and corruption: Evidence from US states. *American Economic Review* 104(8):2456-2481.
23. Adsera A, Boix C, & Payne M (2003) Are you being served? Political accountability and quality of government. *The Journal of Law, Economics, and Organization* 19(2):445-490.
24. Carpenter S (2010) A study of content diversity in online citizen journalism and online newspaper articles. *New Media & Society* 12(7):1064-1084.
25. Alt JE & Lassen DD (2003) The political economy of institutions and corruption in American states. *Journal of Theoretical Politics* 15(3):341-365.

26. Alt JE & Lassen DD (2012) Enforcement and public corruption: Evidence from the American states. *The Journal of Law, Economics, and Organization* 30(2):306-338.
27. Angrist JD & Pischke J-S (2008) *Mostly harmless econometrics: An empiricist's companion* (Princeton university press).
28. Autor DH (2003) Outsourcing at will: The contribution of unjust dismissal doctrine to the growth of employment outsourcing. *Journal of labor economics* 21(1):1-42.
29. Carnahan S (2017) Blocked but not tackled: who founds new firms when rivals dissolve? *Strategic Management Journal* 38(11):2189-2212.
30. Goodman-Bacon A (2018) Difference-in-differences with variation in treatment timing. (National Bureau of Economic Research).
31. Abrams DS (2011) Is pleading really a bargain? *Journal of Empirical Legal Studies* 8:200-221.
32. Fico F, *et al.* (2013) Citizen journalism sites as information substitutes and complements for United States newspaper coverage of local governments. *Digital Journalism* 1(1):152-168.
33. Bengani P (2019) Hundreds of "pink slime" local news outlets are distributing algorithmic stories and conservative talking points. *Columbia Journalism Review. https://www. cjr. org/tow_center_reports/hundreds-of-pink-slime-local-news-outlets-are-distributing-algorithmic-stories-conservative-talking-points. php*.
34. Mahone & Napoli (2020) Hundreds of hyperpartisan sites are masquerading as local news. This map shows if there's one near you. *The Nieman Lab* (July 13, 2020).
35. Chan J, Ghose A, & Seamans R (2016) The Internet and Hate Crime: Offline Spillovers from Online Access. *MIS Quarterly* 40(2).
36. Ghose A, Smith MD, & Telang R (2006) Internet Exchanges for Used Books: An Empirical Analysis of Product Cannibalization and Welfare Impact. *Information Systems Research* 17(1):3-19.
37. Greenwood BN & Wattal S (2017) Show Me The Way To Go Home: An Empirical Investigation of Ridesharing and Motor Vehicle Fatalities. *MIS Quarterly* 41(1):163-187.
38. Wang H & Overby EM (2017) How does online lending influence bankruptcy filings? Evidence from a natural experiment.
39. Greenwood BN & Gopal A (2015) Tigerblood: Newspapers, Blogs, and the Founding of Information Technology Firms. *INFORMATION SYSTEMS RESEARCH* 26(4):812 - 828.
40. Brians CL & Wattenberg MP (1996) Campaign issue knowledge and salience: Comparing reception from TV commercials, TV news and newspapers. *American Journal of Political Science*:172-193.

Tables and Figures

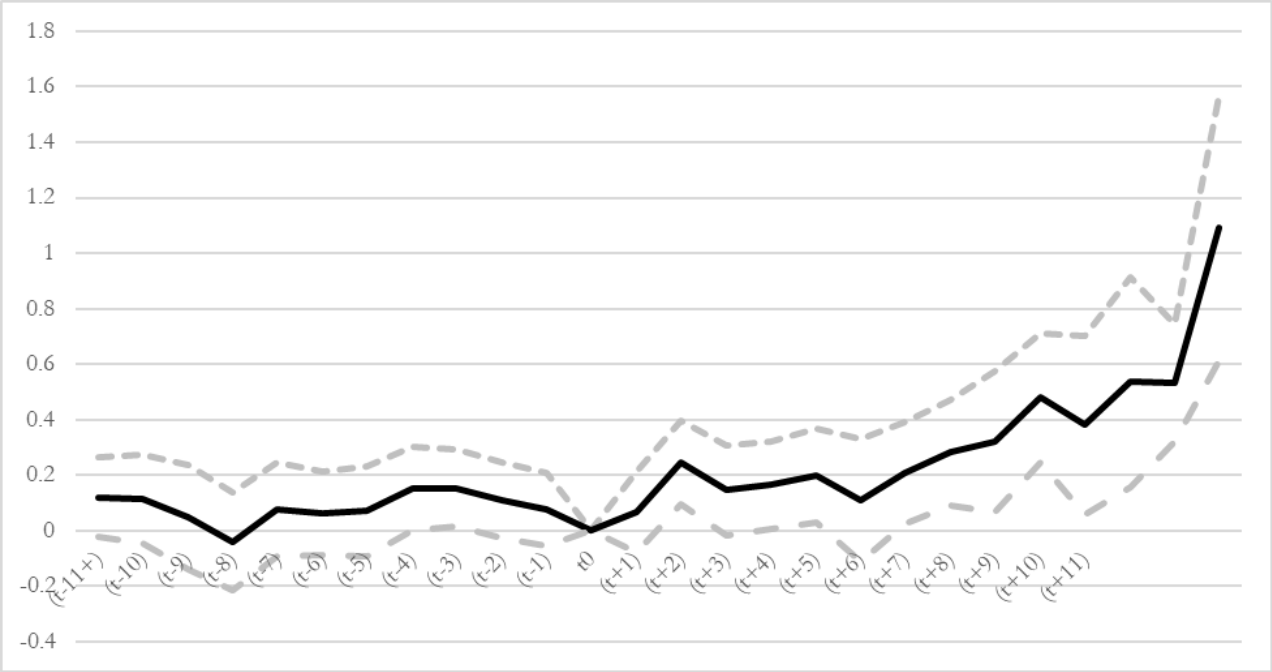

Figure 1
PPML Estimates of Newspaper Closure on Number of Defendants Charged in Relative Time.
X Axis – Time.
Y Axis – Point estimate of PPML Estimation from Table 2 Column 2.
95% Confidence intervals displayed

	(1)	(2)	(3)
Dependent Variable	Charges	Defendants	Cases
Estimator	Poisson	Poisson	Poisson
Closure	0.0669*	0.0661*	0.0718*
	(0.0336)	(0.0322)	(0.0333)
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	2184	2184	2184
Number of Groups	91	91	91

Robust standard errors in parentheses (Clustered on the District)
*** p<0.001, ** p<0.01, * p<0.05

Table 1:
PPML Estimates of the Effect of Newspaper Closure on Political Corruption

	(1)	(2)	(3)
Dependent Variable	Charges	Defendants	Cases
Estimator	Poisson	Poisson	Poisson
Closure (t-11+)	0.107	0.120	0.0746
	(0.0755)	(0.0729)	(0.0693)
Closure (t-10)	0.117	0.116	0.0902
	(0.0846)	(0.0814)	(0.0823)
Closure (t-9)	0.0106	0.0495	0.0667
	(0.0956)	(0.0963)	(0.102)
Closure (t-8)	-0.0835	-0.0395	-0.00967
	(0.0922)	(0.0904)	(0.0898)
Closure (t-7)	0.0506	0.0769	0.0696
	(0.0844)	(0.0874)	(0.0917)
Closure (t-6)	0.0596	0.0610	0.0696
	(0.0834)	(0.0767)	(0.0747)
Closure (t-5)	0.0637	0.0701	0.0663
	(0.0913)	(0.0829)	(0.0760)
Closure (t-4)	0.116	0.153*	0.163*
	(0.0805)	(0.0772)	(0.0789)
Closure (t-3)	0.120	0.153*	0.153*
	(0.0733)	(0.0705)	(0.0681)
Closure (t-2)	0.111	0.109	0.0912
	(0.0751)	(0.0696)	(0.0680)
Closure (t-1)	0.0179	0.0770	0.0683
	(0.0704)	(0.0678)	(0.0637)
Closure (t0) Omitted from the Estimation			
Closure(t+1)	0.0315	0.0684	0.0471
	(0.0753)	(0.0741)	(0.0730)
Closure(t+2)	0.225**	0.245**	0.220**
	(0.0788)	(0.0766)	(0.0713)
Closure(t+3)	0.126	0.145	0.177*
	(0.0905)	(0.0825)	(0.0790)
Closure(t+4)	0.130	0.164*	0.188*
	(0.0815)	(0.0801)	(0.0836)
Closure(t+5)	0.163	0.198*	0.222**
	(0.0860)	(0.0858)	(0.0839)
Closure(t+6)	0.0960	0.111	0.151
	(0.117)	(0.113)	(0.109)
Closure(t+7)	0.180	0.207*	0.208*
	(0.0921)	(0.0931)	(0.0990)
Closure(t+8)	0.248*	0.283**	0.280**
	(0.105)	(0.0973)	(0.0996)
Closure(t+9)	0.314*	0.322*	0.293*
	(0.141)	(0.129)	(0.122)
Closure(t+10)	0.453***	0.479***	0.423***
	(0.118)	(0.118)	(0.112)
Closure(t+11)	0.355*	0.381*	0.338*
	(0.142)	(0.164)	(0.170)
Closure(t+12)	0.565**	0.536**	0.447*
	(0.194)	(0.193)	(0.194)
Closure(t+13)	0.560***	0.532***	0.395***
	(0.105)	(0.108)	(0.119)
Closure(t+14)	1.173***	1.091***	0.940***
	(0.268)	(0.244)	(0.198)
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	2,184	2,184	2,184
Number of Groups	91	91	91

Robust standard errors in parentheses (Clustered on the District)
*** p<0.001, ** p<0.01, * p<0.05

Table 2:
PPML Relative Time Estimates of the Effect of Newspaper Closure on Political Corruption

	(1)	(2)
Dependent Variable	Plea Deals	Guilty Verdicts
Estimator	Poisson	Poisson
Closure	0.0782*	0.224**
	(0.0346)	(0.0837)
District Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	2,184	2,184
Number of Groups	91	91

Robust standard errors in parentheses (Clustered on the District)
*** p<0.001, ** p<0.01, * p<0.05

Table 3
PPML Estimates of Newspaper Closure on Plea Deals and Guilty Verdicts

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Charges	Defendants	Cases	Charges	Defendants	Cases
Estimator	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson
Opening	-0.0180	-0.0476	-0.0323	-0.1668	-0.0471	-0.0332
	(0.0570)	(0.0530)	(0.4979)	(0.5681)	(0.0527)	(0.0493)
Closure				0.0668*	0.0659*	0.0720*
				(0.0336)	(0.0322)	(0.0334)
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,184	2,184	2,184	2,184	2,184	2,184
Number of Groups	91	91	91	91	91	91

Robust standard errors in parentheses (Clustered on the District)

*** p<0.001, ** p<0.01, * p<0.05

Table 4

PPML Estimates of the Effect of Placebo News Site Opening on Political Corruption

Supporting Information

Materials and Methods

Data Description

To explore the impact of investigative journalism on corrupt behavior by political officials we examine the change in the number federal charges, defendants, and cases filed in U.S. District Courts following closure of a newspaper serving that district. As noted, we focus on federal prosecutions as they represent the overwhelming majority of corruption prosecutions in the United States (25, 26). Moreover, this offers the empirical benefit of creating a uniform definition of corruption (federal law being uniform across all 50 states while state statute varies considerably) and reduces the likelihood of selective prosecutions due to political considerations.

Data are collected from several sources. Data on charges of corruption are drawn from the Federal Judicial Center's (FJC) Integrated Database (IDB). These data are sourced from the Executive Office for United States Attorneys (EOUSA) Central Charge file and are organized at the defendant level. These records contain the five most significant charges[8] filed against a census of defendants in US District Courts between 1996-2019.[9] Further details include the: district, case, defendant, filing date, and specific element of the US Code alleged to have been violated. Corruption-related charges are based on reviews of high-profile prior corruption cases and the FBI's Public Integrity Section.[10] Focal charges include:

- 18 U.S.C. §201 (bribery of public officials and witnesses),
- 18 U.S.C. §641 (embezzlement or theft of public money, property or records),
- 18 U.S.C. §666 (theft or bribery concerning programs receiving Federal funds),
- 18 U.S.C. §1341 (mail fraud),
- 18 U.S.C. §1343 (fraud by wire, radio or television),
- 18 U.S.C. §1346 (schemes to defraud),
- 18 U.S.C. §1951 (Hobbs Act - interference with commerce by threats or violence), and
- 18 U.S.C. §1952 (interstate and foreign travel or transportation in aid of racketeering enterprises)

Together, these data include 183,309 charges brought under these sections against 128,151 defendants in 93,432 cases over the sample. Data are aggregated to the district-year. Data on newspaper closures are drawn from the UNC News Deserts database maintained by Abernathy (7). These data include information on closures and format changes for US newspapers. As our focus is on the effect of investigative journalism, and smaller weekly newspapers rarely have the resources for, or interest in, such work, we focus on the 69 major daily newspapers that closed during the sample. We code the first full calendar year after closure over as the beginning of treatment for the district. Note that some districts are

[8] Among the 126,969 defendants in the data set, 83.9% had five total charges or less, suggesting that potential censoring related to unobserved sixth-or-more charges is likely a non-issue.

[9] Appellate Courts are not included because they are not trial courts. All corruption cases heard in these venues would necessarily have been brought in District courts.

[10] https://www.justice.gov/criminal/pin

affected by multiple closures. Results are consistent if we code closures as an ordinal value.

Variable Definitions and Estimation

We use three dependent variables for the investigation. The first is the number of defendants, *Defendants*, charged in Federal District Court for the above violations of 18 U.S.C. This measure allows us to capture the number of people who have been indicted by a grand jury to a probable cause standard. The probable cause standard is important because it ensures that frivolous charges are omitted. The second measure is the number of unique cases brought, *Cases*. As cases can have multiple defendants, this allows us to capture the total number of criminal endeavors which have been stopped by law enforcement. Finally, *Charges*, which are the total number of individual charges that have been levied against defendants in the district-year. As a defendant might have multiple charges brought against them, this dependent variable allows us to capture the scope of criminal undertaking.

The key independent variable of interest is *Closure*, a 0/1 indicator that a major newspaper was shut down in District *j* before time *t.* The value is 1 in the year after the district experiences a closure, and zero prior to that time. To complete the difference in difference estimation we also include district and year fixed effects. Year fixed effects allow us to parse out general changes in the level of political corruption which occur year on year across all federal districts. District fixed effects allow us to capture time invariant heterogeneity regarding the level of corruption in any given location. For example, the Northern District of Illinois prosecutes significantly more cases than the Northern District of Oklahoma. Summary statistics and correlations are in Table S2. The unit of analysis is the district court-year. There are 94 districts in the US, including those representing the District of Columbia, Puerto Rico, Guam, the Northern Mariana Islands and the US Virgin Islands. The primary independent variable is a treatment indicator, $Closure_{jt}$, corresponds to a previously observed closure of a daily newspaper in district j. The estimator is a Poisson fixed effect quasi-maximum likelihood estimator. This allows us to avoid the well-known problems with fixed effect negative binomial and logged DV estimations (41-43). The equation is expressed as linear for readability.

Robustness and Secondary Checks

Time Varying Controls

It is possible that time varying factors which are correlated with the closure of newspapers are also having an effect on the level of local corruption. There are several sources which might materially bias the estimates: demographic changes, economic changes, prosecutorial resources, and the emergence of social media. From a demographic perspective, major changes in the underlying population might change the pool of candidates for local office in a manner which increases the likelihood of criminal behavior occurring. If this is correlated with newspaper closure, the estimates might be biased. From an economic perspective, if the fiscal health of a local area is deteriorating, it is plausible that a crumbling economic

infrastructure might lead to both the closure of newspapers and a spike in political corruption. These same conditions might also lead to a redirection in funding and capacity for prosecution to a given district. Finally, the growth of social media as competitors to newspapers might precipitate the decline of newspapers and reflect a growth in coverage and discussion of ongoing corruption. Again, any or all of these patterns could potentially bias our estimates.

To account for the demographic variation, we include covariates to capture the number of *journalists* working in the area (measured as the number of NAICS 51110-classified employees), political ideology in the form of the Cook Partisan Voting Index (*pvi*), the size of the district (*total area*), the *population*, the number of religious establishments (*religion*), and controls for racial diversity (*WhitePop*). To account for economic conditions, we include the total wages of journalists (*Journalist Wages*), the number of persons employed in *non-farm employment,* the total wages of non-farm employees (*Non-Farm Income*), and the total *personal income* of persons living in the area. These data were sourced from the Bureau of Economic Analysis. To account for the resources of US Attorney's office in the district, we include the total throughput of cases (*Throughput (Cases)*) and the throughput of defendants (*Throughput (Def)*). Intuitively, these should proxy the bandwidth the AUSA's office. Finally, we collect data from Google Trends on state-level search interest for the social media platforms Facebook (*Facebook),* Twitter (*Twitter),* MySpace (*MySpace)* and NextDoor (*NextDoor)*. Intuitively, as persons might be substituting social media for print media as their information source during the sample, capturing interest in these platforms is important. It is worth noting that Google Trends only covers the time period from January 2004 forward. Of the above platforms, only MySpace was founded prior to this date (August 2003). Prior to 2004, search interest is set to zero. As Google Trends data includes some random disturbances, we sampled the data five times and averaged across samples.

Results are in Table S3. We first introduce the demographic controls, then the economic controls, then the social media platform controls, and then the entire suite of controls. As can be seen, the inclusion of additional covariates yields materially consistent findings. In Columns 1-4, we see a significant increase in the number of charges brought. In Columns 5-8 we observe a substantial increase in the number of defendants charged. And in Columns 9-12, we observe a meaningful increase in the number of cases tried. Each of these underscores the increase in local levels of political corruption which are manifesting after newspaper closure.

Changes in prosecutorial choices

One potential threat to the identification comes from changes in the decision making of federal prosecutors following newspaper closures. We have argued that newspapers primarily serve as an amplifier, covering prosecutions after the fact and directing attention to the ongoing work of law

enforcement. However, if newspapers primarily serve an investigative role, uncovering cases and establishing the facts needed for law enforcement to become involved, this could have multiple impacts. The first would be a decline in charges, defendants, and cases; though, as the results indicate, this is not observed. Another possible outcome would be for prosecutors to shift focus in the cases they chose to prosecute. With the effective loss of an investigative arm, prosecutors might presumably focus on larger, more important cases, which are easier to detect. If this is the case, and newspapers yield a change in which types of cases prosecutors select into trying, we would expect increases in the average penalties per defendant (i.e. sentences to prison, probation, and fines) following the closure of a major newspaper.

To examine this possibility, we calculated the average prison and probation sentences (measured in months) for defendants, as well as the average fines, and estimate a linear model including the treatment indicator and fixed effects for year and district. An OLS estimator is needed as the dependent variable is no longer an integer value. Results are in Table S4. As can be seen, there is no significant observed relationship between newspaper closure, the average prison sentence, the average probationary period, and the average fine levied upon defendants. This suggests that the closure of newspapers has not yielded a significant change in the types of cases prosecuted successfully by Federal authorities.

Placebo Dependent Variable

One further concern is our results may be due to other factors influencing the prosecution of crime more generally, such as a more aggressive US Attorney's office, rather than the closure of a newspaper. As a result, there may simply be a spurious correlation with the treatment. To rule this out and provide stronger evidence for our proposed process, we examine other types of crimes unrelated to political corruption, and that should presumably be unaffected by the closure of a daily newspaper. We consider seven groups of crimes: assault (18 USC §201), firearms offenses (§921-931), civil and criminal forfeiture (§981-982), fugitives from justice (§1071-1074), homicide (§1111-1122), kidnapping (§1201-1204), and sexual abuse (§2241-2260). To execute these estimations, we sum the charges and replicate Equation 1. Results are in Table S5. As can be seen, there is no significant relationship between the closure of a newspaper and the overall number of placebo charges, defendants, or cases. We also consider each group of charges individually and observe one significant relationship among 21 tests – a positive relationship between closure and homicide charges. This rate is consistent with what would be expected by random chance, supporting our contention that the effects are specific to corruption and again highlighting the appropriateness of the design and the robustness of the finding.

Expanded Set of Charges

While our measure of local corruption follows convention, it is worth considering whether a more expansive view of what defines corruption might be more accurate. Although definitions from prior work

and the FBI are reasonable, this does push us to think about what corruption entails. We therefore expand the set of charges to include the comprehensive list in Table S1. As can be seen, this includes violations of the RICO Act, bribery, the acceptance of loans, acts affecting personal financial interest, and more. We then replicate our baseline estimations with the totality of these actions. Results are in Table S6. As can be seen, the correlation between newspaper closure and local corruption persists using this expanded definition of corruption. This once again highlights the relationship between an active press and suppressed corrupt behavior on the part of malicious actors.

Antecedents of newspaper closure

As discussed, it is plausible that time varying levels of criminality might both precipitate the closure of a newspaper and the material rise in corruption. While the inclusion of economic controls, as well as the absence of pre-treatment trends, provides evidence that deteriorating economic conditions and spiking corruption are not the drivers of newspaper closure, we more formally address this question through a survival model of newspaper closure. To execute this test we swap the independent and dependent variables of interest and execute a discrete-time logit hazard model (44). Intuitively, by regressing closure on the suite of independent variables we can directly assess if changing levels of corruption precedes closure. Following Singer and Willett (44), all observations after the location receives treatment (i.e. closure) are dropped. Results are in Table S7. As can be seen, no substantive relationship exists between the closure of a newspaper and charges, defendants, or cases. This once again underscores the validity of the approach, and that the closure of a newspaper can be considered an event exogenous to the level of political corruption, once conditioned upon controls.

Coverage of Crime

Throughout this work we have maintained a consistent but untested assumption that the sample's shuttered newspapers did, in-fact, cover corruption; and that this coverage resulted in changing criminal attitudes and behaviors. This robustness check examines this assumption directly with the goal of determining if newspapers are covering the pool of trials contained in the sample prior to their closure. Put another way, a critical assumption is that these publications provided coverage of ongoing corruption in the regions they served. To validate this assumption, we match the closed newspapers to the Newsbank database. Forty-eight of the sixty-nine closures yielded matches. We then searched the database for any articles containing the word "corruption." Forty-five of the newspapers indexed in the database had at least one article, with 35 having more than 100 matches. This suggests that the closed newspapers did cover corruption in some form.

A second and related concern is that the closure of a major newspaper does not happen in a vacuum. It is possible that, seeing an opportunity to fill the gap left by the closure of one newspaper, the remaining

outlets might devote additional resources to covering corruption. This would be reflected in either an increase or net-zero changes in the number of articles mentioning corruption following a closure. To examine this possibility, we again employed the Newsbank database to identify articles from all available publications in each district that contained the word "corruption." We identified 1,756,862 such articles appearing in 6,318 publications during the sample. Publications were matched to their U.S. district courts. We then sum the number of articles and the number of publications which printed these articles at the district-year level and replicate our estimations using these counts as the dependent variables. Results are in Table S8. We observe significant and negative effects of closure on the number of articles and the number of publications covering that corruption. This indicates a significant decrease in corruption coverage by the remaining outlets following the closure of a major newspaper and a significant decrease in the number of outlets covering corruption. To ensure consistency with the main analysis, we replicate the base models while incorporating the number of articles and publications as controls (Table S8). Results remain consistent, there is a significant increase in observed corruption after newspaper closure.

One final concern is that neither of these tests directly addresses the question of whether newspapers increase the salience of existing cases. One critical limitation of the FJC IDB is that, while cases are uniquely coded, the identification codes assigned to individual cases are arbitrary and do not permit us to identify defendants. We therefore leverage an additional dataset, the Bloomberg legal database, which provides coverage of cases filed in Federal court, though this coverage is not complete as it is in the FJC IDB.[11] The key benefit of this source it that the court dockets can be searched directly and provide the complete filing information, including identifying information for defendants. Searches of cases filed in U.S. District courts identified 17,417 cases with charges matching those used in the primary analysis. We extract the full names of each defendant in each case and query the Newsbank database for any mentions of these individuals for one year before and after the case's filing date. This search yielded identified 491,487 articles mentioning defendants by name. This provides further corroborative evidence that the sample newspapers are covering the sample cases.

Goodman-Bacon Decomposition

Our identification strategy employs a difference-in-difference approach, with multiple treatments applied over time and geography. Thus, the estimate of the effect of newspaper closure represents a weighted average of comparisons between districts that had a newspaper closure and those that did not (treated vs. untreated), as well as between districts that had a newspaper close earlier in the panel and those that had a

[11] Although both databases (Bloomberg and FJC) index the same underlying data, differences emerge due to heterogeneity in which the individual clerks at the courts enter docket information. As a legal librarian noted about docket searching during our discussions: "docket searching is known to cause mild madness as search precision is subject to the input of the clerks in the various courts."

newspaper close later (timing groups), conditional upon the time varying controls (30). This is notable because it is possible that the effect of newspaper closure is heterogenous over time, an issue that is more likely to be problematic in longer panels (30, 45-46), yielding an inverse weighting problem. If there is heterogeneity in the effect, our estimate of the treatment effect will be biased. Though our relative time model suggests this is unlikely to be an issue, as a further robustness test, we apply the Goodman-Bacon decomposition (30) to examine the relative impact of the different components of the estimate.

As the decomposition utilizes a linear estimate, we log-transform our dependent measures of charges, defendants, and cases. Results are in Table S9. We also included estimates of the treatment effect from an OLS difference-in-difference regression employing two-way fixed effects for comparison. We note that the overall decomposed parameter estimates are almost identical to those of the DiD regression and remains significant. Further, we note that the majority of the treatment effect (74%) is due to differences in comparisons between treated and untreated groups, only 19% is accounted for by comparisons between variations in treatment timing, and only 7% due to the effects of the time-varying controls. In sum, these results suggest that our modeling approach provides a reasonable estimate for the average treatment effect of newspaper closure on corruption, and that the differences in closure timing do not bias this estimate.

Supplement References

41. Silva JS & Tenreyro S (2011) Further Simulation Evidence on the Performance of the Poisson Pseudo-Maximum Likelihood Estimator. *Economics Letters* 112(2):220-222.
42. Silva JS & Tenreyro S (2006) The Log of Gravity. *The Review of Economics and Statistics* 88(4):641-658.
43. Allison PD & Waterman RP (2002) Fixed–effects negative binomial regression models. *Sociological methodology* 32(1):247-265.
44. Singer JD & Willett JB (1993) It's about time: Using discrete-time survival analysis to study duration and the timing of events. *Journal of Educational and Behavioral Statistics* 18(2):155-195.
45. Callaway, Brantly, & Pedro HC Sant'Anna. "Difference-in-differences with multiple time periods." *Journal of Econometrics* (2020).
46. Sun, L, & Sarah Abraham. "Estimating dynamic treatment effects in event studies with heterogeneous treatment effects." *Journal of Econometrics* (2020).

Figures and Tables

US Code	Major Charges
18 U.S.C. § 201	Bribery of public officials and witnesses
18 U.S.C. § 641	Theft of Public money, property or records
18 U.S.C. § 666	Theft or bribery concerning programs receiving Federal funds
18 U.S.C. § 1341	Mail Fraud - frauds and swindles
18 U.S.C. § 1343	Fraud by wire, radio, or television
18 U.S.C. § 1346	Honest Services Act - scheme or artifice to defraud
18 U.S.C. § 1951	Hobbs Act - Interference with commerce by threats or violence
18 U.S.C. § 1952	Interstate and foreign travel or transportation in aid of racketeering enterprises
Comprehensive Set of Charges	
18 U.S.C. § 203	Compensation to Members of Congress, officers, and others in matters affecting the Government
18 U.S.C. § 205	Activities of officers and employees in claims against and other matters affecting the Government
18 U.S.C. § 207	Restrictions on former officers, employees, and elected officials of the executive and legislative branches
18 U.S.C. § 208	Acts affecting a personal financial interest
18 U.S.C. § 209	Salary of Government officials and employees payable only by United States
18 U.S.C. § 210	Offer to procure appointive public office
18 U.S.C. § 211	Acceptance or solicitation to obtain appointive public office
18 U.S.C. § 213	Acceptance of loan or gratuity by financial institution examiner
18 U.S.C. § 214	Offer for procurement of Federal Reserve bank loan and discount of commercial paper
18 U.S.C. § 215	Receipt of commissions or gifts for procuring loans
18 U.S.C. § 219	Officers and employees acting as agents of foreign principals
18 U.S.C. § 221	Refusal or neglect to answer questions; false answers
18 U.S.C. § 224	Bribery in sporting contests
18 U.S.C. § 226	Bribery affecting port security
18 U.S.C. § 1961 - 1968	Racketeer Influenced and Corrupt Organizations (RICO) Act

Table S1
List of Crimes Included

	Variable	N	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12
1	Closure	2,256	0.136	0.34248												
2	Charges	2,184	71.281	73.74466	0.156											
3	Defendants	2,184	55.304	55.33064	0.161	0.987										
4	Cases	2,184	41.192	41.10285	0.165	0.923	0.956									
5	All Charges	2,184	76.616	81.28163	0.165	0.983	0.971	0.901								
6	All Defendants	2,184	59.419	61.17703	0.170	0.969	0.981	0.929	0.988							
7	All Cases	2,184	42.180	42.08705	0.168	0.927	0.960	0.999	0.911	0.939						
8	Journalists	2,070	1186.01	2225.505	-0.004	0.088	0.081	0.088	0.100	0.092	0.093					
9	PVI	1,800	-0.0286	0.1008524	0.086	0.323	0.316	0.276	0.353	0.346	0.292	0.236				
10	Total Area	2,070	43915.0	77812.83	-0.040	-0.107	-0.113	-0.109	-0.113	-0.117	-0.113	0.079	-0.255			
11	Population	2,070	1037796	1929740	0.169	0.202	0.194	0.187	0.240	0.234	0.195	0.829	0.254	0.086		
12	Religion	2,256	526.289	2336.019	0.081	0.036	0.037	0.034	0.055	0.056	0.041	0.069	0.362	-0.030	0.129	
13	WhitePop	2,066	459040	979853.8	0.122	0.458	0.441	0.393	0.498	0.487	0.401	0.192	0.206	0.036	0.462	0.122
14	Journalist Wages	2,070	0.4739	0.9795204	0.021	0.112	0.106	0.118	0.127	0.120	0.125	0.963	0.337	0.025	0.810	0.151
15	Non Farm Emp	2,070	362371	351804.6	0.229	0.557	0.541	0.492	0.590	0.579	0.502	0.283	0.321	-0.039	0.550	0.194
16	Non Farm Wage	2,070	11100000	1.37E+07	0.212	0.507	0.499	0.451	0.551	0.547	0.464	0.240	0.367	-0.056	0.497	0.219
17	Personal Income	2,070	129000000	1.31E+08	0.275	0.566	0.551	0.505	0.600	0.589	0.517	0.286	0.404	-0.074	0.543	0.238
18	Throughput (Cases)	2,184	515.350	657.6715	0.176	0.300	0.315	0.289	0.319	0.332	0.293	0.133	0.136	0.059	0.224	0.016
19	Throughput (Def)	2,184	892.196	1221.56	0.124	0.367	0.384	0.364	0.376	0.392	0.366	0.064	0.059	0.068	0.146	-0.017
20	Facebook	2,256	27.570	31.749	0.265	-0.010	-0.010	-0.017	-0.134	-0.127	-0.134	-0.144	-0.062	0.025	0.004	0.075
21	Twitter	2,256	2.840	3.594	0.283	0.018	0.021	0.016	-0.134	-0.122	-0.122	-0.104	0.088	-0.057	0.061	0.234
22	MySpace	2,256	5.675	11.619	-0.057	0.051	0.049	0.050	0.054	0.042	0.036	0.014	-0.004	-0.003	-0.010	-0.082
23	Nextdoor	2,256	0.000	0.003	-0.021	-0.036	-0.041	-0.040	-0.037	-0.036	-0.035	0.003	-0.033	0.178	-0.009	-0.012

		13	14	15	16	17	18	19	20	21	22
14	Journalist Wages	0.218									
15	Non Farm Emp	0.859	0.316								
16	Non Farm Wage	0.819	0.287	0.919							
17	Personal Income	0.785	0.334	0.972	0.937						
18	Throughput (Cases)	0.429	0.121	0.309	0.261	0.274					
19	Throughput (Def)	0.529	0.057	0.370	0.343	0.314	0.888				
20	Facebook	-0.011	-0.098	0.071	0.089	0.105	-0.043	-0.056			
21	Twitter	0.024	-0.031	0.143	0.184	0.202	-0.046	-0.065	0.910		
22	MySpace	-0.016	0.024	-0.023	-0.069	-0.041	0.029	0.020	-0.262	-0.341	
23	Nextdoor	-0.022	-0.004	-0.040	-0.032	-0.040	-0.029	-0.026	-0.049	-0.044	-0.006

Table S2

Summary statistics and correlation matrix.

Dependent Variable	(1) Charges	(2) Charges	(3) Charges	(4) Charges	(5) Defendants	(6) Defendants	(7) Defendants	(8) Defendants	(9) Cases	(10) Cases	(11) Cases	(12) Cases
Estimator	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson
Closure	0.0941**	0.103**	0.0909**	0.126***	0.102**	0.111***	0.0842*	0.128***	0.110***	0.101***	0.0981**	0.131***
	-0.0352	-0.0329	-0.0334	-0.0348	-0.0315	-0.0306	-0.0328	-0.0316	-0.0311	-0.0304	-0.0325	-0.0308
Journalists	2.10E-05			-9.08E-06	8.41E-06			-7.99E-06	9.00E-07			-1.26E-05
	-1.16E-05			-3.31E-05	-1.04E-05			-2.69E-05	-9.43E-06			-2.77E-05
PVI	-0.154			0.880*	-0.24			0.776*	-0.332			0.562
	-0.409			-0.429	-0.362			-0.378	-0.336			-0.354
Total Area	6.16E-07			-5.34E-09	4.79E-07			-1.77E-07	6.45E-07			2.75E-07
	-8.29E-07			-7.80E-07	-7.37E-07			-7.06E-07	-6.75E-07			-6.25E-07
Population	-1.50E-09			-9.42E-08	-2.15E-08			-1.08E-07	-2.97E-08			-1.16E-07
	-8.41E-08			-9.73E-08	-7.77E-08			-9.41E-08	-8.76E-08			-1.06E-07
Religion	-1.79e-05**			-3.57E-06	-1.45e-05**			-4.10E-06	-6.73E-06			6.90E-07
	-5.55E-06			-4.93E-06	-4.62E-06			-4.36E-06	-3.52E-06			-4.22E-06
WhitePop	2.79E-08			1.36E-07	-5.13E-08			-3.82E-08	-5.19E-08			-7.89E-08
	-8.20E-08			-1.63E-07	-7.61E-08			-1.46E-07	-7.56E-08			-1.31E-07
Journalist Wages		-8.85E-06		0.000295		-0.000147		7.34E-05		-6.96E-05		0.000107
		-0.000222		-0.000723		-0.000196		-0.000591		-0.000174		-0.000621
Non Farm Employment		3.88e-07*		5.06E-07		3.18E-07		6.27e-07*		2.65E-07		7.59e-07**
		-1.88E-07		-2.77E-07		-1.74E-07		-2.47E-07		-1.88E-07		-2.38E-07
Non Farm Income		-3.50E-09		-1.05E-09		-6.03E-10		1.47E-09		4.44E-10		2.30E-09
		-2.76E-09		-2.72E-09		-2.41E-09		-2.46E-09		-2.22E-09		-2.16E-09
Personal Income		-1.15e-09*		-2.27e-09**		-1.36e-09**		-2.32e-09***		-1.06e-09*		-2.29e-09***
		-5.83E-10		-6.95E-10		-5.13E-10		-5.88E-10		-5.11E-10		-5.57E-10
Throughput (Cases)		0.000181**		8.49E-05		0.000261***		0.00011		0.000406***		0.000246***
		-6.63E-05		-8.02E-05		-6.52E-05		-7.44E-05		-6.72E-05		-7.24E-05
Throughput (Def)		-1.53E-05		8.03E-05		-4.06E-05		7.74e-05*		-0.000117***		-4.60E-06
		-3.73E-05		-4.39E-05		-3.41E-05		-3.87E-05		-3.32E-05		-3.56E-05
Facebook			0.00147	0.00429**			-0.000801	0.00395**			0.00269	0.00415**
			-0.00263	-0.00162			-0.00342	-0.00143			-0.00184	-0.00134
Twitter			-0.0496***	-0.0227*			-0.0372***	-0.015			-0.031***	-0.0101
			-0.00884	-0.0109			-0.00845	-0.00981			-0.00833	-0.00922
MySpace			-0.00136	0.0045			-0.000319	0.00644*			0.00832**	0.00812**
			-0.00385	-0.00292			-0.00351	-0.00273			-0.00268	-0.00278
NextDoor			0.441	0.363			-1.032	-0.604			0.547	0.874
			-2.894	-2.792			-2.029	-1.969			-1.814	-1.95
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,710	2,070	2,184	1,710	1,710	2,070	2,184	1,710	1,710	2,070	2,184	1,710
Number of Groups	90	90	91	90	90	90	91	90	90	90	91	90

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05

Table S3

PPML Estimates of the Effect of Newspaper Closure on Political Corruption Including Time Varying Controls

	(1)	(2)	(3)
Dependent Variable	Average Prison Sentence (Months)	Average Probation Sentence (Months)	Average Fine (USD)
Estimator	Linear	Linear	Linear
Closure	-0.197	-0.437	6,255.488
	(1.936)	(0.449)	(10,664.287)
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	2,063	2,063	2,063
Number of Groups	90	90	90

Robust standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

Table S4
Estimates of Newspaper Closure on Political Corruption Prosecution Penalties

	(1)	(2)	(3)
Dependent Variable	All Placebo Charges	All Placebo Defendants	All Placebo Cases
Estimator	Poisson	Poisson	Poisson
Closure	-0.0339	-0.0491	-0.00957
	(0.0411)	(0.0406)	(0.0355)
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	2,184	2,184	2,184
Number of Groups	91	91	91

	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent Variable	Firearms Charges	Firearms Defendants	Firearms Cases	Forfeiture Charges	Forfeiture Defendants	Forfeiture Cases	Fugitives Charges	Fugitives Defendants	Fugitives Cases
Estimator	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson
Closure	-0.0330	-0.0554	-0.0196	-0.300	-0.345	-0.0237	-0.224	-0.113	-0.0565
	(0.0441)	(0.0434)	(0.0383)	(0.229)	(0.232)	(0.196)	(0.201)	(0.198)	(0.188)
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,184	2,184	2,184	2,064	2,064	2,064	2,088	2,088	2,088
Number of Groups	91	91	91	86	86	86	87	87	87

	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Dependent Variable	Homicide Charges	Homicide Defendants	Homicide Cases	Kidnapping Charges	Kidnapping Defendants	Kidnapping Cases	Sex. Abuse Charges	Sex. Abuse Defendants	Sex. Abuse Cases
Estimator	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson	Poisson
Closure	-0.209**	-0.117	-0.0880	-0.0147	-0.0502	0.0916	0.219	0.283	0.163
	(0.0974)	(0.0906)	(0.0775)	(0.153)	(0.138)	(0.117)	(0.211)	(0.196)	(0.176)
District Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,944	1,944	1,944	2,184	2,184	2,184	2,016	2,016	2,016
Number of Groups	81	81	81	91	91	91	84	84	84

Robust standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

Table S5
PPML Estimates of the Effect of Newspaper Closure on Placebo Charges

	(1)	(2)	(3)
Dependent Variable	Expanded Charges	Expanded Defendants	Expanded Cases
Estimator	Poisson	Poisson	Poisson
Closure	0.0761*	0.0811*	0.0763*
	(0.0339)	(0.0319)	(0.0320)
District Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	2,184	2,184	2,184
Number of Groups	91	91	91

Robust standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

Table S6
PPML Estimates of Newspaper Closure on Political Corruption (Expanded Crime Definition)

	(1)	(2)	(3	(4)
Dependent Variable	Closure	Closure	Closure	Closure
Estimator	Logit	Logit	Logit	Logit
Major Charges	-0.00134			0.00962
	(0.00324)			(0.0114)
Major Defendants		-0.00367		-0.0257
		(0.00530)		(0.0294)
Major Cases			-0.00438	0.0112
			(0.00714)	(0.0212)
Journalists	-9.58e-05	-0.000104	-0.000123	-0.000163
	(0.000653)	(0.000658)	(0.000657)	(0.000665)
PVI	-1.715	-1.652	-1.756	-1.519
	(3.101)	(3.096)	(3.090)	(3.108)
Total Area	-6.13e-06	-6.06e-06	-5.81e-06	-5.42e-06
	(7.76e-06)	(7.71e-06)	(7.60e-06)	(7.51e-06)
Population	5.11e-07*	5.17e-07*	5.16e-07*	5.45e-07*
	(2.56e-07)	(2.58e-07)	(2.56e-07)	(2.64e-07)
Religion	-0.000857	-0.000885	-0.000892	-0.000828
	(0.000453)	(0.000458)	(0.000464)	(0.000464)
WhitePop	-9.98e-08	-1.34e-07	-1.40e-07	-2.72e-07
	(4.87e-07)	(4.90e-07)	(4.90e-07)	(5.33e-07)
Journalist Wages	-0.00823	-0.00838	-0.00792	-0.00748
	(0.0119)	(0.0121)	(0.0120)	(0.0121)
Non Farm Employment	-4.74e-06	-4.79e-06	-4.77e-06	-4.10e-06
	(4.05e-06)	(4.05e-06)	(4.02e-06)	(4.22e-06)
Non Farm Income	-6.78e-08	-7.02e-08	-6.66e-08	-5.92e-08
	(4.89e-08)	(4.81e-08)	(4.67e-08)	(5.09e-08)
Personal Income	2.30e-08*	2.39e-08*	2.35e-08*	2.10e-08
	(1.16e-08)	(1.14e-08)	(1.13e-08)	(1.21e-08)
Throughput (Cases)	0.00104	0.00101	0.00103	0.00101
	(0.000625)	(0.000626)	(0.000627)	(0.000630)
Throughput (Def)	-0.000250	-0.000216	-0.000232	-0.000178
	(0.000445)	(0.000449)	(0.000449)	(0.000454)
Facebook	-0.0278	-0.0251	-0.0255	-0.0244
	(0.0317)	(0.0321)	(0.0321)	(0.0324)
Twitter	0.309	0.293	0.304	0.297
	(0.207)	(0.207)	(0.204)	(0.207)
MySpace	0.0358	0.0399	0.0411	0.0424
	(0.0488)	(0.0491)	(0.0498)	(0.0495)
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Table S7
Logit Hazard Model of Political Corruption's Effect on Newspaper Closure

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	Articles	Publications	Charges	Defendants	Cases
Estimator	Poisson	Poisson	Poisson	Poisson	Poisson
Closure	-0.257***	-0.152***	0.0817*	0.0813**	0.0799*
	(0.0438)	(0.0259)	(0.0329)	(0.0312)	(0.0327)
Number of Articles			3.35e-05	2.06e-05	2.68e-06
			(1.94e-05)	(1.78e-05)	(1.56e-05)
Number of Publications			-0.00298***	-0.00305***	-0.00184**
			(0.000716)	(0.000743)	(0.000604)
District Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	2,256	2,256	2,184	2,184	2,184
Number of Groups	94	94	91	91	91

Robust standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

Table S8
PPML Estimates of Newspaper Closure on Newspaper Coverage of Corruption and Corruption

Dependent Variable	Weight	(1) ln(Charges)	(2) ln(Defendants)	(3) ln(Cases)
Closure		0.0970*	0.0796*	0.1077**
(DiD Estimate)		(0.0430)	(0.0377)	(0.0343)
Closure		0.0922*	0.0796*	0.1077**
(G-B Estimate)		(0.0430)	(0.0377)	(0.0343)
Decomposition Estimates				
Timing Groups	0.1935	-0.0201	-0.0677	-0.0392
Untreated vs. Treated	0.7384	0.0842	0.0818	0.1269
Within	0.0681	0.4979	0.4731	0.3173
Time-Varying Controls		Yes	Yes	Yes
District Fixed Effects		Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes
Observations		1,710	1,710	1,710
Number of Groups		90	90	90

Robust standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05

Table S9
Goodman-Bacon Decomposition Estimates of Newspaper Closure on Political Corruption